REMARKS

No claims have been amended. No claims have been cancelled or added. Hence, Claims 1 - 26 are pending in the Application.

SUMMARY OF REJECTIONS/OBJECTIONS

Claims 1 – 5, 10 – 17, and 22 – 24 are rejected under 35 USC 103(a) as being unpatentable over U.S. Patent No. 6,035,412, hereafter Tamer, in view of U.S. Patent No. 5,890,169, hereafter Wong.

Claims 6 – 7, 18 – 19, 25 – 26 are rejected under 35 USC 103(a) as being unpatentable over Tamer, in view of Wong, in further of U.S. Patent No. 5,819, 298.

Claims 8 – 9 and 20 – 21 are rejected under 35 USC 103(a) as being unpatentable over Tamer, in view of Wong, in further view of U.S. Patent No. 6,032,158.

Claims 1 and 13

Claims 1 and 13, recite:

....

concurrently with said first database system directly storing first database records in first data blocks having a first data block size, said first database system directly accessing a copy of second data blocks in which a second database system directly stored second database records;

said second data blocks having at least one data block with a second data block size different than said first data block size; and

wherein each block of said first data blocks and of said second data blocks is an atomic unit of storage space allocated within a file to store one or more records of a database.

Importantly, claims 1 and 13 require that the first and second data blocks be "an atomic unit of storage space allocated within a file to store one or more records of a database", and that the second data blocks have at least one data block with a second data

block size different than said first data block size. These features, together with others required by claim 1, are not disclosed or suggested in any way by the cited art.

To establish a *prima facie* case of obviousness, three basic criteria must be met. First, there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. MPEP 2143

The Office Action bases its rejection on cited art that, alone or in combination, fails to teach or suggest all the claim limitations of claims 1 and 13. Furthermore, the cited art fails to provide a suggestion or motivation to combine.

The cited art, alone or in combination, cannot teach or suggest different sized data blocks because the cited art does not even teach about data blocks as claimed

Neither Tamer or Wong teach or suggest in any way that data blocks are an "atomic unit of storage space allocated within a file to store one or more records of a database", as claimed. Because Tamer or Wong fail to teach or suggest in any way data blocks, as claimed, Tamer or Wong cannot possibly teach about data blocks that have different sizes, as claimed.

In basing the rejections on Tamer, the Office Action has correlated various claimed features regarding the claimed data blocks to items in Tamer. Specifically, the Office Action has correlated a set of data blocks to a "set of volume[s]", and has thus correlated a data block to a volume. (Office Action, section 5, 3rd paragraph) The Office Action correlates data block size to a "set of tracks", and one or more records in a data block to records or buckets stored in a track. (Office Action, section 5, 5th paragraph)

The Office Action has correlated different sized data blocks to the different sized file clusters taught by Wong. (Office Action, section 5) Thus, the Office Action has also correlated a file cluster in Wong to a data block as claimed.

In correlating either a volume to a data block or a cluster to a data block, the Office Action has given the term data block, as claimed, an unreasonably broad interpretation. MPEP states the following about claim interpretation.

> **"CLAIMS MUST BE GIVEN THEIR BROADEST REASONABLE INTERPRETATION**
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> During patent examination, the pending claims must be "given *>their<broadest reasonable interpretation consistent with the specification." >>*In re Hyatt* , 211 F.3d 1367,1372,54 USPQ2d 1664,1667 (Fed.Cir.2000)" (MPEP 2111)
>
> "The broadest reasonable interpretation of the claims must also be consistent with the interpretation that those skilled in the art would reach. *In re Cortright* ,165 F.3d 1353,1359,49 USPQ2d 1464,1468 (Fed.Cir.1999)" (id.)

In interpreting the term data block, as claimed, the Office Action applies a rule of interpretation in which claim terms are given their broadest possible interpretation. Under such a rule, it is possible to abstract a claim term to a level where it reads on almost anything. For example, at a high level of abstraction, the term automobile could be interpreted as a tri-cycle because both have wheels or both carry people.

However, the rule of interpretation to which the PTO is subordinate is not that a claim term is to be given its broadest interpretation but is instead to be "given [the] broadest *reasonable* interpretation consistent with the specification" (emphasis added) and "consistent with the interpretation that those skilled in the art would reach." Nothing in the specification suggests that a data block is the equivalent of a disk volume or file cluster. Furthermore, with respect to the disk volume of Tamer, one skilled in the art would not interpret a disk volume as an "atomic unit of storage space allocated within a

file to store one or more records of a database." With respect to a cluster, Wong teaches that a cluster is a unit of storage space that makes up a file. However, it would not follow, to one of ordinary skill in the art, that a file cluster is an "atomic unit of storage space allocated within a file **to store one or more records of a database**", as claimed.

Based on a reasonable interpretation of a data block, as claimed, neither Tamer nor Wong teach or suggest anything about the claimed data blocks. Therefore, Tamer or Wong cannot possibly teach or suggest in any way data blocks with different sizes in the way claimed.

Modifying Tamer in light of secondary references such as Wong violates a principle of operation in Tamer. Therefore, there is no motivation or suggestion to combine Tamer with Wong and Tamer may not be used to establish obviousness

The Office Action correlates a set of data blocks to a disk volume and correlates a data block size to a "set of tracks". The Office Action combines Tamer with Wong because it allegedly teaches that "two block sizes are different". Thus, the Office Action proposes modifying Tamer by having disk volumes with different sets of tracks. However, an important principle of operation of Tamer is that disk volumes have the same set of tracks.

The MPEP states, "[i]f the proposed modification or combination of the prior art would change the principle of operation of the prior art invention being modified, then the teachings of the references are not sufficient to render the claims *prima facie* obvious. MPEP §2143.01 citing *In re Ratti,* 270 F.2d 810, 123 USPQ 349 (CCPA 1959).

Key aspects of Tamer are a bitmap that is used to track changes to corresponding tracks on separate volumes, and how the synchronization process, which uses the bitmap, synchronizes the separate volumes. A "bit map includes a record or bucket 11 for each

track t_j of the disk which it is representing and each record or bucket includes a bit for M1, corresponding to the primary database in the master unit, and a bit for M2, corresponding to the database copy in the slave unit. The controller uses the bit maps to keep track of which tracks have been modified when the backup mirroring is not operating." (col. 8 lines 2 – 20)

Synchronization of a master and slave volume uses a bitmap for the master volume and the slave volume to determine which tracks on a slave volume needed to be updated. For "each track that is modified on the master side, the master unit enters a one in the M2 field for the track of the appropriate bit map (i.e., the bit map for the volume that was modified). Similarly, on the slave side, all writes to the mirror disks are identified by entering ones in the M1 fields for the tracks of the appropriate bit maps. The bit entries on the master side identify which tracks need to be sent over to the slave side to bring the slave side up to date with the master side. And the bit map entries on the slave side identify which tracks need to be refreshed from the R1 to overwrite the changes that occurred during backup to tape." (col. 10 line 60 – col. 11 line 4)

To bring a slave up to date with a track on a master that has changed, there must be a corresponding track on the slave. To refresh a track that has changed on the slave, there must be a corresponding track on the master used to overwrite the track on the slave.

Thus, Tamer teaches a system of synchronization that requires volumes that mirror each other i.e. they must have the same tracks. Because the modification proposed by the Office Action violates this principle of operation, there is no motivation or suggestion to combine the teachings of Tamer and Wong - Tamer may not be combined with Wong. Therefore, the Office Action has failed to establish *prima facie* obviousness.

Remaining Pending Claims

The pending claims not discussed so far are dependant claims that depend on an independent claim that is discussed above. Because each of the dependant claims include the limitations of claims upon which they depend, the dependant claims are patentable for at least those reasons the claims upon which the dependant claims depend are patentable. Removal of the rejections with respect to the dependant claims and allowance of the dependant claims is respectfully requested. In addition, the dependent claims introduce additional limitations that independently render them patentable. Due to the fundamental difference already identified, a separate discussion of those limitations is not included at this time.

For the reasons set forth above, Applicant respectfully submits that all pending claims are patentable over the art of record, including the art cited but not applied. Accordingly, allowance of all claims is hereby respectfully solicited.

The Examiner is respectfully requested to contact the undersigned by telephone if it is believed that such contact would further the examination of the present application.

Respectfully submitted,

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I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Mail Stop Amendment, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450.

on March 31, 2005 by Jennifer Newell